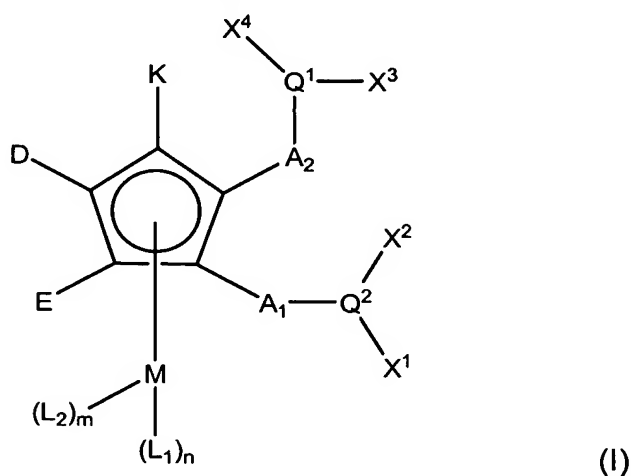


**Amendments to the Claims:**

The following claims will replace all prior versions of the claims in this application (in the unlikely event that no claims follow herein, the previously pending claims will remain):

1. (Original) A compound obtainable by combining:
  - (a) a Group VIIIB metal or a compound thereof; and,
  - (b) a compound of formula I or salt thereof:



wherein:

A<sub>1</sub> and A<sub>2</sub>, and A<sub>3</sub>, A<sub>4</sub> and A<sub>5</sub> (when present), each independently represent lower alkylene;

K is selected from the group consisting of hydrogen, lower alkyl, aryl, Het, halo, cyano, nitro, -OR<sup>19</sup>, -OC(O)R<sup>20</sup>, -C(O)R<sup>21</sup>, -C(O)OR<sup>22</sup>, -N(R<sup>23</sup>)R<sup>24</sup>, -C(O)N(R<sup>25</sup>)R<sup>26</sup>, -C(S)(R<sup>27</sup>)R<sup>28</sup>, -SR<sup>29</sup>, -C(O)SR<sup>30</sup>, -CF<sub>3</sub> or -A<sub>3</sub>-Q<sup>3</sup>(X<sup>5</sup>)X<sup>6</sup>;

D is selected from the group consisting of hydrogen, lower alkyl, aryl, Het, halo, cyano, nitro, -OR<sup>19</sup>, -OC(O)R<sup>20</sup>, -C(O)R<sup>21</sup>, -C(O)OR<sup>22</sup>, -N(R<sup>23</sup>)R<sup>24</sup>, -C(O)N(R<sup>25</sup>)R<sup>26</sup>, -C(S)(R<sup>27</sup>)R<sup>28</sup>, -SR<sup>29</sup>, -C(O)SR<sup>30</sup>, -CF<sub>3</sub> or A<sub>4</sub>-Q<sup>4</sup>(X<sup>7</sup>)X<sup>8</sup>;

E is selected from the group consisting of hydrogen, lower alkyl, aryl, Het, halo, cyano, nitro, -OR<sup>19</sup>, -OC(O)R<sup>20</sup>, -C(O)R<sup>21</sup>, -C(O)OR<sup>22</sup>, -N(R<sup>23</sup>)R<sup>24</sup>, -C(O)N(R<sup>25</sup>)R<sup>26</sup>, -C(S)(R<sup>27</sup>)R<sup>28</sup>, -SR<sup>29</sup>, -C(O)SR<sup>30</sup>, -CF<sub>3</sub> or -A<sub>5</sub>-Q<sup>5</sup>(X<sup>9</sup>)X<sup>10</sup>;

or both D and E together with the carbon atoms of the cyclopentadienyl ring to which they are attached form an optionally substituted phenyl ring:

X<sup>1</sup> represents CR<sup>1</sup>(R<sup>2</sup>)(R<sup>3</sup>), congressyl or adamantyl, X<sup>2</sup> represents CR<sup>4</sup>(R<sup>5</sup>)(R<sup>6</sup>), congressyl or adamantyl, or X<sup>1</sup> and X<sup>2</sup> together with Q<sup>2</sup> to which they are attached form an optionally substituted 2-phospha-adamantyl group, or X<sup>1</sup> and X<sup>2</sup> together with Q<sup>2</sup> to which they are attached form a ring system of formula Ia;

X<sup>3</sup> represents CR<sup>7</sup>(R<sup>8</sup>)(R<sup>9</sup>), congressyl or adamantyl, X<sup>4</sup> represents CR<sup>10</sup>(R<sup>11</sup>)(R<sup>12</sup>), congressyl or adamantyl, or X<sup>3</sup> and X<sup>4</sup> together with Q<sup>1</sup> to which they are attached form an optionally substituted 2-phospha-adamantyl group, or X<sup>3</sup> and X<sup>4</sup> together with Q<sup>1</sup> to which they are attached form a ring system of formula Ib ;

X<sup>5</sup> represents CR<sup>13</sup>(R<sup>14</sup>)(R<sup>15</sup>), congressyl or adamantyl, X<sup>6</sup> represents CR<sup>16</sup>(R<sup>17</sup>)(R<sup>18</sup>), congressyl or adamantyl, or X<sup>5</sup> and X<sup>6</sup> together with Q<sup>3</sup> to which they are attached form an optionally substituted 2-phospha-adamantyl group, or X<sup>5</sup> and X<sup>6</sup> together with Q<sup>3</sup> to which they are attached form a ring system of formula Ic ;

X<sup>7</sup> represents CR<sup>31</sup>(R<sup>32</sup>)(R<sup>33</sup>), congressyl or adamantyl, X<sup>8</sup> represents CR<sup>34</sup>(R<sup>35</sup>)(R<sup>36</sup>), congressyl or adamantyl, or X<sup>7</sup> and X<sup>8</sup> together with Q<sup>4</sup> to which they are attached form an optionally substituted 2-phospha-adamantyl group, or X<sup>7</sup> and X<sup>8</sup> together with Q<sup>4</sup> to which they are attached form a ring system of formula 1d ;

X<sup>9</sup> represents CR<sup>37</sup>(R<sup>38</sup>)(R<sup>39</sup>), congressyl or adamantyl, X<sup>10</sup> represents CR<sup>40</sup>(R<sup>41</sup>)(R<sup>42</sup>), congressyl or adamantyl, or X<sup>9</sup> and X<sup>10</sup> together with Q<sup>5</sup> to which they are attached form an optionally substituted 2-phospha-adamantyl group, or X<sup>9</sup> and X<sup>10</sup> together with Q<sup>5</sup> to which they are attached form a ring system of formula 1e ;

$Q^1$  and  $Q^2$ , and  $Q^3$ ,  $Q^4$  and  $Q^5$  (when present), each independently represent phosphorus, arsenic or antimony;

M represents a Group VIB or VIIB metal or metal cation thereof;

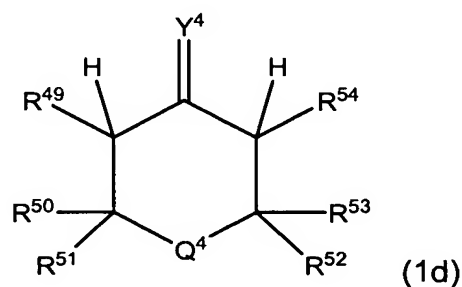
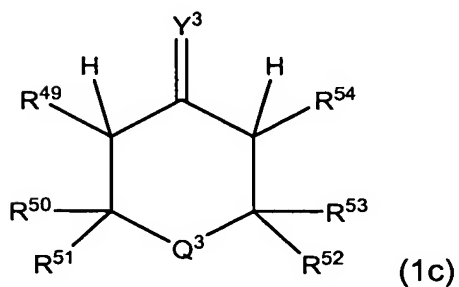
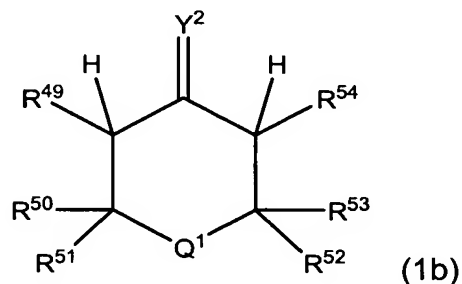
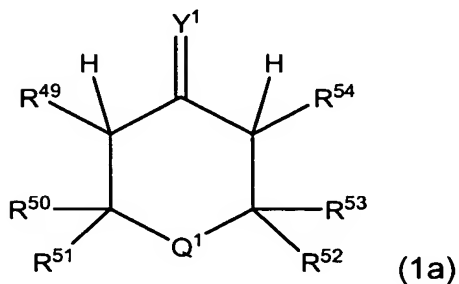
$L_1$  represents an optionally substituted cyclopentadienyl, indenyl or aryl group;

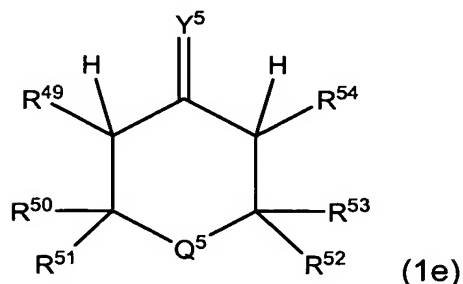
$L_2$  represents one or more ligands each of which are independently selected from hydrogen, lower alkyl, alkylaryl, halo, CO, P ( $R^{43}$ )( $R^{44}$ ) $R^{45}$  or N( $R^{46}$ )( $R^{47}$ ) $R^{48}$  ;

$R^1$  to  $R^{18}$  and  $R^{31}$  to  $R^{42}$ , when present, each independently represent hydrogen, lower alkyl, aryl, halo or Het;

$R^{19}$  to  $R^{30}$  and  $R^{43}$  to  $R^{48}$ , when present, each independently represent hydrogen, lower alkyl, aryl or Het;

the ring systems of formula 1a, 1b, 1c, 1d and 1e are represented by the formulae





$R^{49}$ ,  $R^{54}$  and  $R^{55}$ , each independently represent hydrogen, lower alkyl or aryl;  $R^{50}$  to  $R^{53}$  each independently represent hydrogen, lower alkyl, aryl or Het; and  $Y^1$ ,  $Y^2$ ,  $Y^3$ ,  $Y^4$  and  $Y^5$ , each independently represent oxygen, sulfur or  $N-R^{55}$ ;

$n = 0$  or  $1$ ;

and  $m = 0$  to  $5$ ;

provided that when  $n = 1$  then  $m$  equals  $0$ , and when  $n$  equals  $0$  then  $m$  does not equal  $0$ .

2. (Currently amended) A compound as claimed in claim 1, wherein if both  $K$  represents  $-A_3-Q^3(X^5)X^6$  and  $E$  represents  $-A_5-Q^5(X^9)X^{10}$ , then  $D$  represents  $-A_4-Q^4(X^7)X^8$ .

3. (Currently amended) A compound as claimed in claim 1 or 2, wherein  $R^1$  to  $R^{18}$  and  $R^{31}$  to  $R^{42}$  each independently represent hydrogen, optionally substituted  $C_1$ - $C_6$  alkyl or optionally substituted phenyl.

4. (Currently amended) A compound as claimed in ~~any one of claims 1 to 3~~ claim 1, wherein  $R^1$  to  $R^{18}$  and  $R^{31}$  to  $R^{42}$  each independently represent hydrogen or non-substituted  $C_1$ - $C_6$  alkyl.

5. (Currently amended) A compound as claimed in ~~any one of claims 1 to 3~~ claim 1, wherein one or more of the groups  $R^1$  to  $R^3$ ,  $R^4$  to  $R^6$ ,  $R^7$  to  $R^9$ ,  $R^{10}$  to  $R^{12}$ ,

R<sup>13</sup> to R<sup>15</sup>, R<sup>16</sup> to R<sup>18</sup>, R<sup>31</sup> to R<sup>33</sup>, R<sup>34</sup> to R<sup>36</sup>, R<sup>37</sup> to R<sup>39</sup>, R<sup>40</sup> to R<sup>42</sup> together with the carbon atom to which they are attached each independently form a cyclic alkyl structure.

6. (Currently amended) A compound as claimed in ~~any one of claims 1 to 3~~ claim 1, wherein one or more of the groups R<sup>1</sup> and R<sup>2</sup>, R<sup>4</sup> and R<sup>5</sup>, R<sup>7</sup> and R<sup>8</sup>, R<sup>10</sup> and R<sup>11</sup>, R<sup>13</sup> and R<sup>14</sup>, R<sup>16</sup> and R<sup>17</sup>, R<sup>31</sup> and R<sup>32</sup>, R<sup>34</sup> and R<sup>35</sup>, R<sup>37</sup> and R<sup>38</sup>, R<sup>40</sup> and R<sup>41</sup> together with the carbon atom to which they are attached each independently form a cyclic alkyl structure.

7. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein each of R<sup>1</sup> to R<sup>18</sup> and R<sup>31</sup> to R<sup>42</sup> does not represent hydrogen.

8. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein adamantyl represents unsubstituted adamantyl or adamantyl substituted with one or more unsubstituted C<sub>1</sub>-C<sub>8</sub> alkyl substituents, or a combination thereof.

9. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein 2-phospha-adamantyl represents unsubstituted 2-phospha-adamantyl or 2-phospha-adamantyl substituted with one or more unsubstituted C<sub>1</sub>-C<sub>8</sub> alkyl substituents, or a combination thereof.

10. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein 2-phospha-adamantyl includes one or more oxygen atoms in the 2-phospha-adamantyl skeleton.

11. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein congressyl represents unsubstituted congressyl.

12. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein  $R^{50}$  to  $R^{53}$  each independently represent optionally substituted  $C_1$ - $C_6$  alkyl, trifluoromethyl or phenyl optionally substituted with non-substituted  $C_1$ - $C_6$  alkyl or  $OR^{19}$  where  $R^{19}$  represents non-substituted  $C_1$ - $C_6$  alkyl.

13. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein  $R^{49}$  and  $R^{54}$  each independently represent hydrogen or non-substituted  $C_1$ - $C_6$  alkyl.

14. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein each of  $Y^1$  to  $Y^5$  represents oxygen.

15. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein  $X^1$  is identical to  $X^3$ , and  $X^5$ ,  $X^7$  and  $X^9$  when present.

16. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein  $X^2$  is identical to  $X^4$ , and  $X^6$ ,  $X^8$  and  $X^{10}$  when present.

17. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein  $X^1$  represents  $CR^1(R^2)(R^3)$ ,  $X^2$  represents  $CR^4(R^5)(R^6)$ ,  $X^3$  represents  $CR^7(R^8)(R^9)$  and  $X^4$  represents  $CR^{10}(R^{11})(R^{12})$ .

18. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein  $X^1$  represents  $CR^1(R^2)(R^3)$ ,  $X^2$  represents adamantyl,  $X^3$  represents  $CR^7(R^8)(R^9)$  and  $X^4$  represents adamantyl.

19. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein  $X^1$  represents  $CR^1(R^2)(R^3)$ ,  $X^2$  represents congressyl,  $X^3$  represents  $CR^7(R^8)(R^9)$  and  $X^4$  represents congressyl.

20. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein  $X^1$  to  $X^4$  each independently represent adamantyl.

21. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein  $X^1$  to  $X^4$  each independently represent congressyl.

22. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein  $X^1$  and  $X^2$  together with  $Q^2$  to which they are attached form a ring system of formula Ia, and  $X^3$  and  $X^4$  together with  $Q^1$  to which they are attached form a ring system of formula Ib.

23. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein  $X^1$  and  $X^2$  together with  $Q^2$  to which they are attached form a 2-phospha-adamantyl group, and  $X^3$  and  $X^4$  together with  $Q^1$  to which they are attached form a 2-phospha-adamantyl group.

24. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein K represents hydrogen.

25. (Currently amended) A compound as claimed in ~~any one of claims 1 to 23~~ claim 1, wherein K represents  $-A_3-Q^3(X^5)X^6$ .

26. (Currently amended) A compound as claimed in claim 25, wherein  $-A_3-Q^3(X^5)X^6$  is identical to  $-A_2-Q^1(X^3)X^4$ .

27. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein D and E together with the carbon atoms of the cyclopentadienyl ring to which they are attached form an unsubstituted phenyl ring.

28. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein D and E both represent hydrogen.

29. (Currently amended) A compound as claimed in ~~any one of claims 1 to 26~~ claim 1, wherein D represents  $-A_4-Q^4(X^7)X^8$ .

30. (Original) A compound as claimed in claim 29, wherein  $-A_4-Q^4(X^7)X^8$  is identical to  $-A_2-Q^1(X^3)X^4$ .

31. (Currently amended) A compound as claimed in ~~any one claims 29 or 30~~ claim 29, wherein E represents hydrogen.

32. (Currently amended) A compound as claimed in ~~any one claims 1 to 26, 29 or 30~~ claim 1, wherein E represents  $-A_5-Q^5(X^9)X^{10}$ .

33. (Currently amended) A compound as claimed in claim 32, wherein  $-A_5-Q^5(X^9)X^{10}$  is identical to  $-A_2-Q^1(X^3)X^4$ .

34. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein  $A_1$  and  $A_2$ , and  $A_3$ ,  $A_4$  and  $A_5$  when present, each independently represent  $-CH_2-$  or  $-C_2H_4-$ .

35. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein each  $A_1$  and  $A_2$ , and  $A_3$ ,  $A_4$  and  $A_5$  when present are identical and preferably represent  $-CH_2-$ .

36. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein each  $Q^1$  and  $Q^2$ , and  $Q^3$ ,  $Q^4$  and  $Q^5$  when present are identical and preferably represent phosphorous.

37. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein  $n=1$ ,  $m=0$  and  $L_1$  is selected from cyclopentadienyl, phenyl, indenyl or naphthyl, preferably unsubstituted cyclopentadienyl.

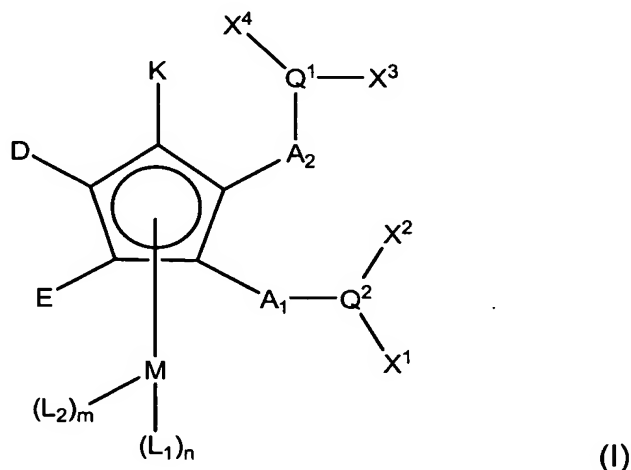


38. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein M represents iron or a metal cation thereof.

39. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1 obtainable by combining: (a) palladium or a compound thereof; and (b) a compound of formula I as defined in ~~any one of the preceding claims~~ claim 1.

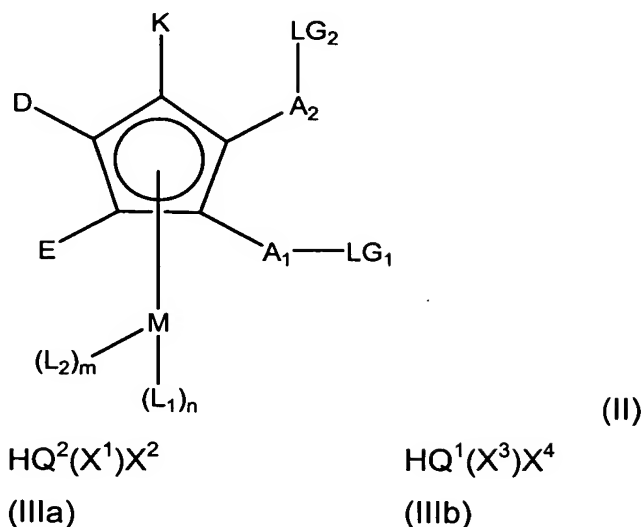
40. (Currently amended) A process for preparing a compound as defined in ~~any one of claims 1 to 39~~ claim 1 comprising combining (a) a Group VIII B metal or compound thereof; and, (b) a compound of formula I as defined in ~~any one of claims 1 to 38~~ claim 1.

41. (Currently amended) A compound of formula I



wherein A<sub>1</sub>, A<sub>2</sub>, K, D, E, M, L<sub>2</sub>, L<sub>1</sub>, Q<sup>1</sup>, Q<sup>2</sup>, X<sup>1</sup>, X<sup>2</sup>, X<sup>3</sup>, X<sup>4</sup>, n and m are as defined in ~~any one of claims 1 to 38~~ claim 1.

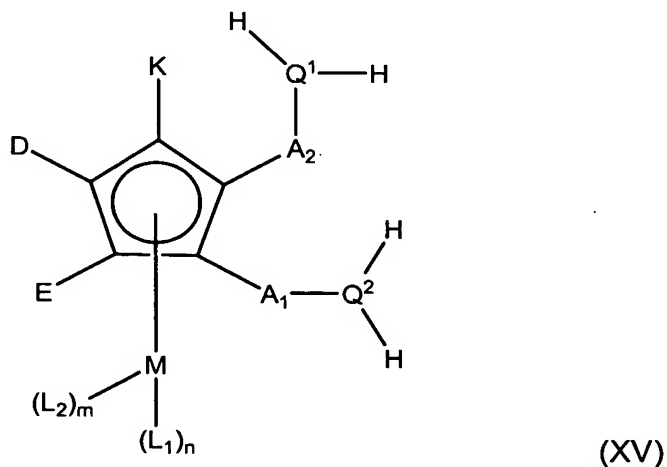
42. (Currently amended) A process for preparing a compound of formula I as defined in claim 41, comprising reacting a compound of formula II wherein A<sub>1</sub>, A<sub>2</sub>, K, D, E, M, L<sub>1</sub>, L<sub>2</sub>, n and m are as defined for a compound of formula I, and LG<sub>1</sub> and LG<sub>2</sub> represent suitable leaving groups, with a compound of formula IIIa and IIIb



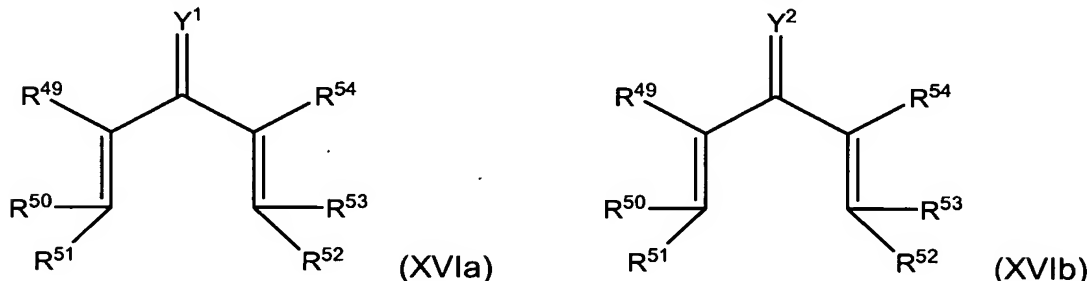
wherein  $\text{X}^1$ ,  $\text{X}^2$ ,  $\text{Q}^2$ ,  $\text{X}^3$ ,  $\text{X}^4$  and  $\text{Q}^1$  are as defined in ~~any one of claims 1 to 38~~ claim 1.

43. (Original) A compound of formula II as defined in claim 42.

44. (Currently amended) A process for preparing a compound of formula I wherein K, D, E, M,  $\text{A}_2$ ,  $\text{A}_1$ ,  $\text{L}_2$ ,  $\text{L}_1$ ,  $\text{Q}^1$ ,  $\text{Q}^2$ , m and n are as defined in ~~any one of claims 1 to 38~~ claim 1 and  $\text{X}^1$  and  $\text{X}^2$  together with  $\text{Q}^2$  to which they are attached form a ring system of formula Ia as defined in ~~any one of claims 1 to 38~~ claim 1 and  $\text{X}^3$  and  $\text{X}^4$  together with  $\text{Q}^1$  to which they are attached form a ring system of formula Ib as defined in ~~any one of claims 1 to 38~~ claim 1, comprising reacting a compound of formula XV



wherein K, D, E, M, A<sub>2</sub>, A<sub>1</sub>, L<sub>2</sub>, L<sub>1</sub>, Q<sup>1</sup>, Q<sup>2</sup>, m and n are as defined in ~~anyone of claims 1 to 38~~ claim 1, with a compound of formula XVIa and XVIb



wherein Y<sup>1</sup>, Y<sup>2</sup>, R<sup>49</sup> to R<sup>55</sup> are as defined for a compound of formula I.

45. (Original) A compound of formula XV as defined in claim 44.

46. (Currently amended) A process for the carbonylation of an ethylenically unsaturated compound comprising contacting an ethylenically unsaturated compound with carbon monoxide and a co-reactant in the presence of a compound as defined in ~~any one of claims 1 to 39~~ claim 1.

47. (Original) A process as defined in claim 46 wherein the co-reactant includes a hydroxyl group containing compound.

48. (Currently amended) A process as claimed in claim 46 ~~or 47~~ wherein the ethylenically unsaturated compound comprises ethylene, 1, 3-butadiene, oct-1-ene or vinyl acetate, preferably ethylene.

49. (Currently amended) A process as claimed in any one of claims 46 ~~to 48~~, further including the step of including a source of anions.

50. (Currently amended) A composition comprising a compound as defined in ~~any one of claims 1 to 39~~ claim 1 attached to a support.

51. (Currently amended) Use of a compound as defined in ~~anyone of claims 1 to~~  
~~39~~ claim 1 or a composition as defined in claim 50 as a catalyst.